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Amendment

REMARKS

Reconsideration of the application in view of the above amendments and the following remarks is respectfully requested. The subject Amendment is submitted in response to the office action mailed on August 27, 2003. Claims 5 and 6 have been amended. Thus, claims 1-12 remain pending in the application.

The amendments to claims 5 and 6 have not been made to overcome prior art or for means of patentability, but were made to focus the desired scope of protection.

By way of this amendment, Applicant has made a diligent effort to place the claims in condition for allowance. However, should there remain any outstanding issues that require adverse action, it is respectfully requested that the Examiner telephone the undersigned at (805) 781-2865 so that such issues may be resolved as expeditiously as possible.

Turning to the specific objections and rejections:

1. Drawings Under 37 C.F.R. 1.83(a)

The Examiner has objected to the drawings under 37 C.F.R. 1.83(a) indicating that every feature of the invention specified in the claims must be shown. Applicant traverses this rejection and submits that each and every element claimed is in fact shown in the drawings. However, to expedite the prosecution of the subject application, Applicant has added new Figure 5A.

The Examiner rejected the drawings stating that "'the tool interface means of the bolt and nut having different sizes' and 'the tool interface means of the nut faces outside the crank handle' as in claims 3, 6, 9 and 11." (Office Action, page 2, paragraph 2). However, with respect to the tool interface means "having different sizes", Applicant respectfully directs the Examiner to Fig. 5 and the Specification as originally filed at page 9, lines 3-8. Fig. 5 shows and the description of Fig. 5 clarify that the size of the tool interface of the nut can be a different size than the tool interface of the bolt.

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More specifically, the Specification recites, "[t]he tool interface 58 in nut 50 is a hexagonal shape similar to that in the bolt 40, but with the distance across the flat surfaces of the hexagon being equal to 6mm. In this manner, even though the tool engagement depth for the nut 50 is not as deep as that for the bolt 40, the larger tool size results in a torque capacity for the nut 50 equal to that for the bolt 40." (Specification, page 9, lines 3-7, emphasis added). Therefore, Fig. 5 as filed depicts the tool interfaces of the nut and bolt being of different sizes. Other Figures show the nut and bolt, where the tool interfaces can be substantially the same size or different sizes.

Fig. 5A has been added where the nut and bolt are reversed such that the tool interface 46 of the bolt 40 faces outside or towards the crank handle. Further, Fig. 5A shows the tool interface 58 of the nut 50 to be of substantially the same size as the tool interface 46 of bolt 40.

The Examiner further suggests that the Figures fail to show "'the tool interface means of the nut faces outside....'" (Office Action, paragraph 2). However, Applicant respectfully submits that the assembly of Fig. 5 shows the nut facing the outside. As such, the added Fig. 5A shows the tool interface 46 of the bolt 40 facing the outside. The application as filed provides support throughout the application for the amendments to the Figures, and no new matter has been added by the amendments to the Figures. The specification has also been amended in the BRIEF DESCRIPTIONS section at page 6, lines 11-12 to include reference to the added Fig. 5A. Amendments to the Specification at page 8, line 1 have also been added to provide a description of Fig. 5A. There is support in the application as filed for the addition of Fig. 5A and the description at pages 6 and 8. The support is found in at least original claims 2, 3, 5, 6, 8 and 9, therefore no new matter has been added. Further, the original Figures as filed and added Fig. 5A are examples of implementations of the present embodiments and are not the only embodiments on which the claims read.

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2. Claim Rejections under 35 U.S.C. §103

The Examiner has rejected claims 1- 12 as being unpatentable over published PCT Application No. WO93/08071 (referred to below as the WO9308071 reference) in view of Kirrish, U.S. Patent No. 4,310,273 (referred to below as the Kirrish reference). However, Applicant respectfully submits that the WO9308071 and the Kirrish references fail to teach or make obvious the invention as claimed, and further teach away from the claimed invention.

More specifically, the pending independent claims of the present application are directed to systems for attaching one or more chainrings to a bicycle crank, and bicycle crank assemblies with one or more chainrings secured with a crank. Claim 1, for example, recites in part:

a nut comprising of an internally threaded cylinder, an external flange on one end of said cylinder, and a tool interface means formed inside said cylinder;

a bolt that threadedly engages said nut, comprising of an externally threaded shaft, a flange on one end of said shaft, and a tool interface means formed inside said shaft;

whereby said bolt and said nut tighten together to clamp a chainring to a bicycle crank support arm.

The claimed embodiment includes a nut with a tool interface means formed inside the cylinder and bolt with tool interface means formed inside the shaft.

Neither the WO9308071 nor the Kirrish references, nor their combination teach or suggest at least the tool interface means extending into the shaft of the bolt or a tool interface means extending into the cylinder. Further, the WO9308071 and the Kirrish references teach away from forming and/or implementing tool interface means extending into the bolt and/or the nut.

The Examiner relies on the WO9308071 reference to show "fastener assembly (107, 109) ... comprising a nut (107) comprising an internally threaded cylinder ...; a

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bolt (109) threadedly engages the nut and comprises a tool interface (not labeled) formed inside the shaft." (Office Action, paragraph 4). However, the WO9308071 reference simply shows a bolt 109 having a head with a cavity that is formed within the head. This cavity is not formed inside the shaft. Further, there is no indication that the cavity in the head of the bolt received or interacts with a tool. Therefore, the WO9308071 reference fails to teach or provide motivation for a bolt with a tool interface formed within the shaft of the bolt.

Additionally, the Examiner has admitted that WO9308071 reference fails to teach a nut with a tool interface means formed inside the cylinder. More specifically, the office action recites in part, "WO9308071 does not disclose a tool interface means formed inside the cylinder." (Office action, page 3, lines 2-3, emphasis added).

The Examiner relies on the Kirrish patent in an attempt to show the "nut comprising a tool interface means formed inside said cylinder." (Claim 1). However, Applicant respectfully submits that the Kirrish patent does not teach and instead teaches away from a "tool interface means formed inside the cylinder." (Claim 1, emphasis added). Alternatively, the Kirrish patent shows a nut (34) having a head (48). The head (48) is positioned at one end of the nut. The Kirrish patent further describes that the "head portions 40 and 48 are preferably formed with drive tool receiving recesses 56 and 58." (Kirrish, col. 3, lines 34-35). Therefore, it is clear that the "drive tool receiving recess" (58) is part of the head (48) and is not formed inside the cylinder as is recited in claim 1.

The Kirrish patent continues to describe "the elongate shaft portion 38 [of the bolt 32] may extend past panel section 22 to engage a conventional nut member, not shown, comprising a multisided head portion for receiving a suitable wrench." (Kirrish, col. 3, lines 37-41). Therefore, the Kirrish patent does not describe, suggest or contemplate the use of a nut having "a tool interface means formed inside said cylinder" as recited in claim 1. Alternatively, the Kirrish patent specifically limits any

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tool engagement to the "head". Therefore, the Kirrish patent teaches away from the system as recited in claim 1, and thus claim 1 is not obvious over the cited references.

Still further, the Kirrish patent teaches away from providing a nut with a tool interface means formed inside the cylinder of the nut. It is clear from FIG. 3 of the Kirrish patent that the nut 32 extend substantially all the way into the hollow portion of the nut to contact or almost contact the head. As such, the nut fails to provide any area where a tool interface means could be formed inside the cylinder. A tool interface means formed on the interior of the bore would interfere with achieving the desired threading of the bolt and thus goes against the intended purpose of tightening the bolt and nut together.

It has been shown that the cited references fail to teach or make obvious each element of the invention as claimed. Further, the Kirrish patent teaches away from the invention as claimed, and to alter the Kirrish patent would go against its intended purpose. Therefore, the WO9308071 and Kirrish references, and their combination fail to teach or make obvious the embodiments as claimed, and thus claim 1 and the claims that depend there from are not obvious over the cited references.

Independent claims 4, 7 and 12 further recite claim language similar to at least the bolt comprising the tool interface means formed within the shaft and the nut comprising a tool interface means formed within the cylinder. Therefore, independent claims 4, 7 and 12, as well as the claims that depend from these independent claims are not anticipated by the cited references for at least the reasons provided above.

Regarding claims 3, 6 and 9, Applicant respectfully submits that the use of tool interface means for the nut and the bolt in view of the cited references would not have been obvious to one skilled in the art. Neither of the cited reference nor their combination teach or suggest tool interface means of different sizes. The Examiner contends that the different sizes are a matter of design choice to modify weight and cost. However, Applicant respectfully submits that the utilization of tool interface means with different sizes is not merely a design choice but is implemented to provide

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at least specific advantages for the present embodiments over other prior fastening techniques. These specific advantages were realized only after considerable testing and evaluation.

The detailed description on at least page 9, at line 1, of the subject application as filed describes at least one of the motivations and/or benefits achieved through the use of different sized tool interface means. More specifically, a better maximization of thread engagement is achieved by limiting a depth of the tool interface means of the nut. As a result, some embodiments provide for a larger tool interface means in the nut to receive a larger sized tool. The user of a larger sized tool allows for a torque capacity for the nut to be about equal with the torque capacity for the bolt, which in some embodiments achieves a proper fastener tension. The difference in sizes is not merely a design choice but was determined only after testing and evaluation by the Applicant. As such, the use of different sized tool interface means is not simply a design choice and would not have been obvious to one skilled without the benefit of hindsight provided by the subject application. Therefore, claims 3, 6 and 9 would not have been obvious in view of the cited references, and are thus in a condition for allowance.

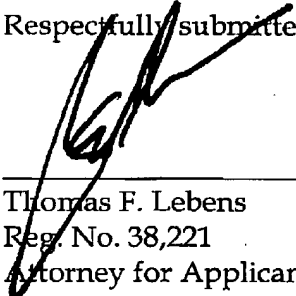
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CONCLUSION

Applicant submits that the above amendments and remarks place the pending claims in a condition for allowance. Therefore, a Notice of Allowance is respectfully requested.

12/24/03
Date

Respectfully submitted,



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